

An Unusual Case Of Difficult Extubation: A Case Report

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Abstract

Difficult extubation is a rare instance and can be challenging. In our case we planned to extubate the patient under general anaesthesia.

INTRODUCTION

Difficult extubation is a rare cause of intubation. We present an unusual case of difficult extubation which was successfully managed by us.

HISTORY

A 13 years old male came with chief complaints of nasal obstruction, epistaxis, difficulty in breathing and proptosis of the left eye. MRI scan revealed nasopharyngeal angiofibroma. A translabial excision of the tumor was planned.

The patient was premedicated with Inj Glycopyrrolate 0.2 mg IM. Starvation and consent was confirmed. After securing an IV access patient was pre-oxygenated with 100% Oxygen and general anaesthesia was induced with Inj Thiopentone sodium 250mg and Inj Vecuronium bromide 6mg IV. After adequate relaxation patient was intubated with 34 Fr. Cuffed armoured endotracheal tube. Throat was packed with saline soaked throat pack. Anaesthesia was maintained with oxygen-nitrous oxide 40:60, Inj Propofol 5mg/kg/hr and Inj. Vecuronium 0.06mg/kg/hr. Sedation and analgesia were maintained with Inj. Midazolam 1mg IV and Inj. Pentazocine 30mg IV respectively. Intraoperatively blood loss was approximately 3 litres and was replaced with 6 units of blood. Vital parameters were within normal limits.

Patient was electively ventilated with volume cycled ventilator in view of major blood loss and post nasal bleed. Post nasal packing was done for post nasal bleed. Patient was planned for extubation after 24 hours confirming haemostasis. After 24 hours we planned to extubate. The throat pack was removed under direct laryngoscopy. There was no evidence of post nasal bleed. We were unable to extubate the patient even with maneuvers like pulling the

tube, coughing out the tube and attempting direct laryngoscopy to pull out the tube. ENT surgeons were consulted for their opinion. They suggested removal of the tube under bronchoscopic guidance. Our senior professor advised the removal of endotracheal tube under general anaesthesia.

We prepared and consented the patient for general anaesthesia. Anaesthesia was induced with Inj. Pentothal 300mg and Inj succinylcholine 70mg IV. After complete relaxation the endotracheal tube could be pulled out easily. There was no evidence of laryngeal trauma or oedema on direct laryngoscopy post extubation. There were no abnormalities detected on the endotracheal tube either. Post operatively and on follow up visits patient did not have any hoarseness of voice, vocal cord palsies or any other sequelae.

DISCUSSION

Difficulty in extubation is an unusual and uncommon complication of intubation.

CAUSES OF DIFFICULT EXTUBATION

1. Permanently inflated tracheal cuffs.1
2. Tracheal tube lacerations2
3. Inadvertent stitch through the tracheal tube.3
4. Fixation with Kirschner wires or sutures.4,5.
5. Excessively large cuff catching on the vocal cords.6
6. Adhesions of the tube to the tracheal wall because of absence of lubricants.6,7
7. Forceful intubation with an inappropriately large

tracheal tube.⁸

8. Following uneventful intubation with an appropriate sized tracheal tube in patients with a laryngeal abnormality.⁹
9. Sleeve formation by cuff of tracheal tube.^{10,11}
10. Loop formation of the pilot balloon.¹²
11. Nasotracheal tube fixation with drill bit, screw.¹²

Maneuvering the tube like rotating the tube¹³, pulling and reinserting the tube¹⁴, coughing out the tube¹⁵, repeated attempts of inflation and deflation of cuff may help, but it did not help in our case.

DISCUSSION

The case that we have described illustrates a very unusual complication of endotracheal intubation.

POSSIBLE CAUSES OF DIFFICULT EXTUBATION IN OUR CASE

1. Just adequately fitting tube with enlargement of the cuff site which apparently held by the tense vocal cords.
2. Copious amount of secretion causing crust formation.
3. Prolonged contact of the tube with the laryngeal mucosa
4. Organization of clot due active post nasal bleed
5. Laryngeal oedema.
6. Hooking of the disrupted coils of reinforced tube in the laryngeal mucosa.
7. Failed deflation of the cuff.
8. Laryngeal trauma during intubation.

A few other unusual cases have been documented by other authors.

M. Tavakoli et al reported a case of difficult extubation due to accidental breakage of the inflating system. Hence the cuff could not be deflated. He performed direct laryngoscopy, pulled the tube until the cuff rested against the vocal cords. This allowed the visualization of the site at which the pilot balloon was dislodged. The cuff was deflated

by connecting a plastic IV cannula at the site of inflation system and the cuff was deflated. This facilitated extubation of the tube.¹

M.Tashyod documented difficult extubation due to forceful intubation with a large size tube. Post surgery extubation was not possible, but maneuvering of the tube by rotation by 180 degree made tracheal extubation possible.¹

Hartley et al describes several causes of difficult extubation like forceful intubation with large tracheal tube or tracheal intubation with appropriate size tracheal tube in patients with laryngeal abnormality. He recommended that rotation of the tracheal tube or manipulation of the larynx and tracheal tube under direct vision may allow successful extubation

N. G. Lall quotes a similar difficult extubation where patient could not be extubated easily but repeated tube maneuvering like reinsertion and rotation made extubation possible. On extubation the tube was inspected and revealed distal fold on the cuff.

In our case the most likely causes of difficult extubation were probably the first four causes. So only after relaxation with Succinylcholine extubation was possible as glottic opening had relaxed allowing the tube to be pulled out. But on direct laryngoscopy and visualization of the endotracheal tube there was no evidence of blood clots or mucous crusts. Hence the most likely cause of difficult extubation was a larger sized tube with the cuff site held by the tense vocal cords which were relaxed with succinylcholine.

CONCLUSION

Difficult extubation is as fatal as difficult intubation. Whenever such a situation arises proper planning for the difficult extubation will help to reduce mortality and morbidity.

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